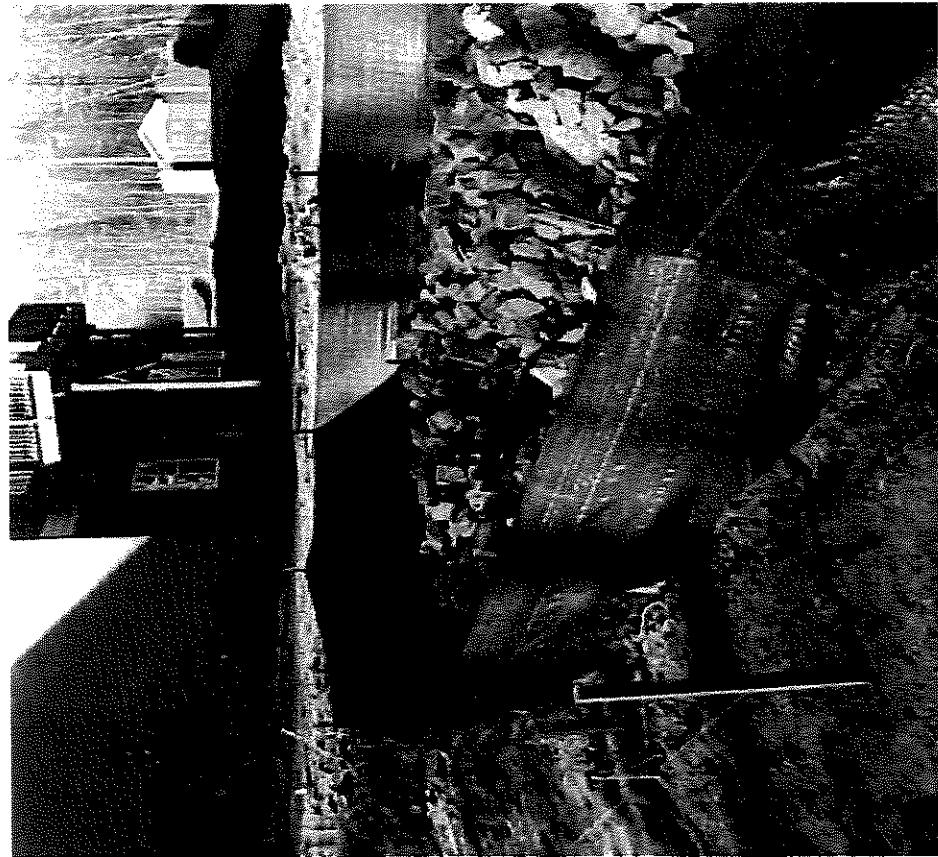


# Outfalls

- Receiving Waters / Off Site Impacts
- Energy Dissipater
- Discharge to Stable Area
- Post-treatment/Pre-treatment
- Sediment Fence
- Off-site Sedimentation

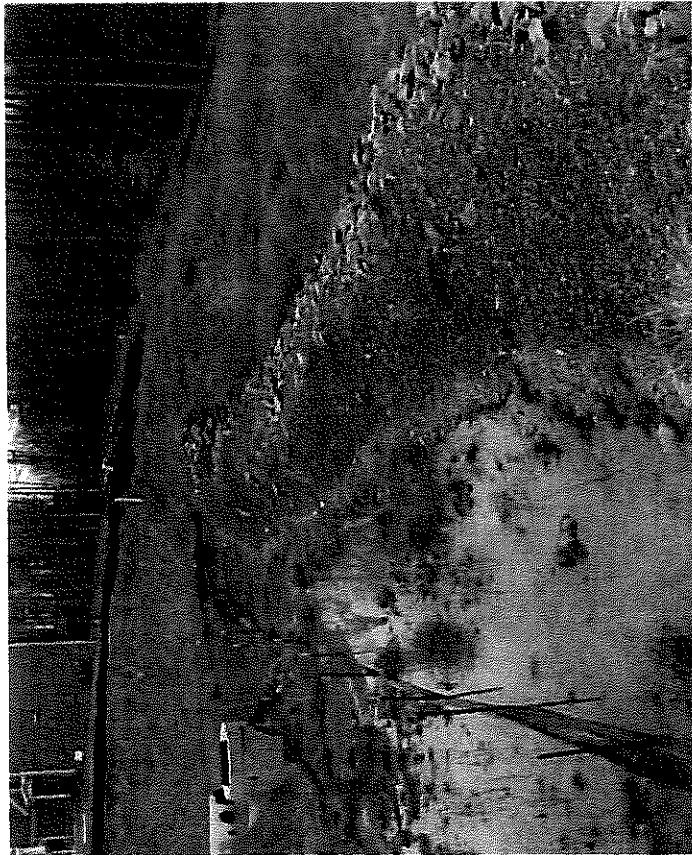


Keep clean water separate  
from site runoff



# Documentation

- Qualitative Monitoring
- Photographs
- Inspection Reports
- Follow up



# Qualitative Monitoring

- Most Frequently Missing Element
- Conduct at Discharge Points



# Qualitative Monitoring Requirement

**Storm Water Discharge Observed  
for the following parameters:**

- Clarity
- Floating Solids
- Suspended Solids
- Oil Sheen
- Other Visible Signs of Pollution

# Photographs

- Important documentation tool
- Carefully note location and date of each photograph
- Pictures of mud alone don't tell much of a story
- include with inspection record

# Inspection Reports

- Create on-site
- Include as much detail as necessary to accurately convey conditions, but no more
- Practice consistency
- Keep on location with plans and permits
- May be used in court

# Schedule Repairs

- Have an E&SC contractor on a regular weekly schedule for repairs
- Include as much detail as necessary to accurately convey conditions
- Verify that repairs are complete
- Document completed “corrective action”
- Repairs should be completed within 48 hours of the inspection date

# Final Stabilization

- Final stabilization means that all soil disturbing activities at the site have been completed and either of the two following criteria have been met:
  - An uniform perennial vegetative cover with a density of 70% has been established on all unpaved areas and areas not covered by permanent structures
  - Equivalent permanent stabilization measures (riprap, geotextiles) have been employed

# Removing Erosion control Measures

- Once final stabilization has been achieved a request is submitted to the state and/or city/county permitting authorities to remove the temporary control measures (i.e. sediment basin, sediment trap, rock dam)

# Penalties

# Penalties

- For Failure to conduct regular inspections:  
\$5,000.00 for each missed inspection
- For Failure to install a BMP:  
\$2,000.00 per day per violation
- For improper installation of a BMP:  
\$1,500.00 per day per violation
- For improper maintenance of a BMP:  
\$1,500.00 per day per violation
- For Failure to maintain rain gauge or accurate records of rainfall at the site:  
\$1,000.00 per day per violation
- For Failure to prevent concrete waste, construction debris, or construction chemicals from being exposed to storm water discharges:  
\$1,000.00 per day per violation

\* For Failure to initiate stabilization measures on a portion of the site where construction activity has either temporarily or permanently ceased for more than 14 days:

\$1,000.00 per day per violation

For Failure to take corrective action due to an inspection:

\$1,000.00 per day for the first ten days of each violation,  
\$2,500.00 per day for the next ten days of each violation,  
and \$5,000.00 per day for each subsequent day of each violation

For Failure to maintain accurate inspection and maintenance documentation:

\$1,000.00 per day per violation

This a partial list.

Questions?

# BMP Guidelines 2007

## Sediment Control Measures

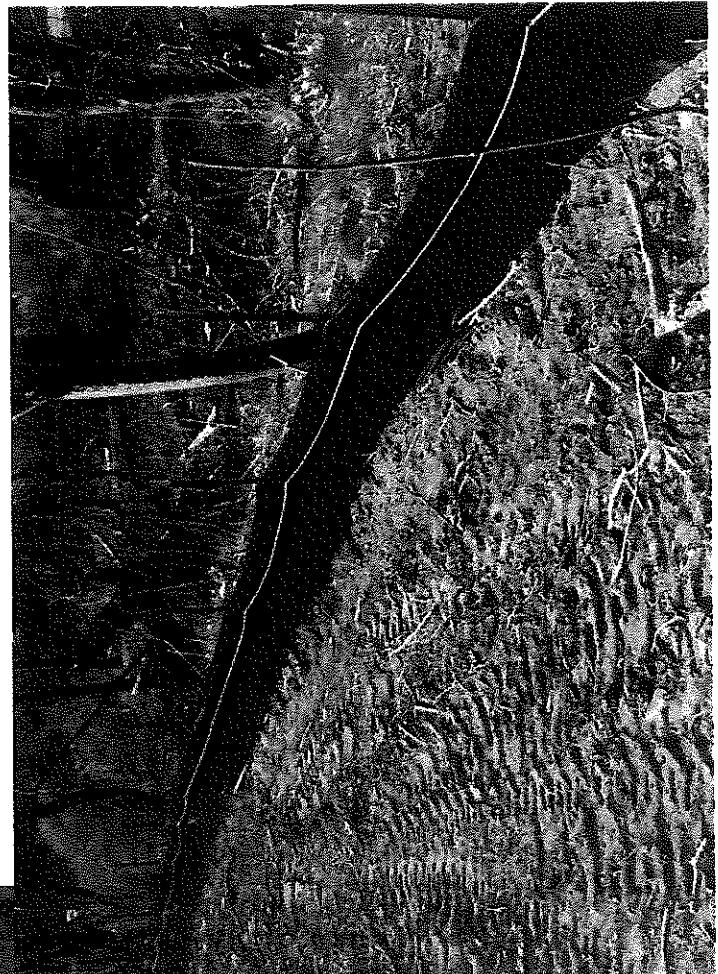
Judy Wiles

1  
2/10/2009

# Sediment Control Measures

- Silt Fence
- Temporary Sediment Trap
- Rock Dam
- Sediment Basin
- Skimmer Sediment Basin

# Silt Fence

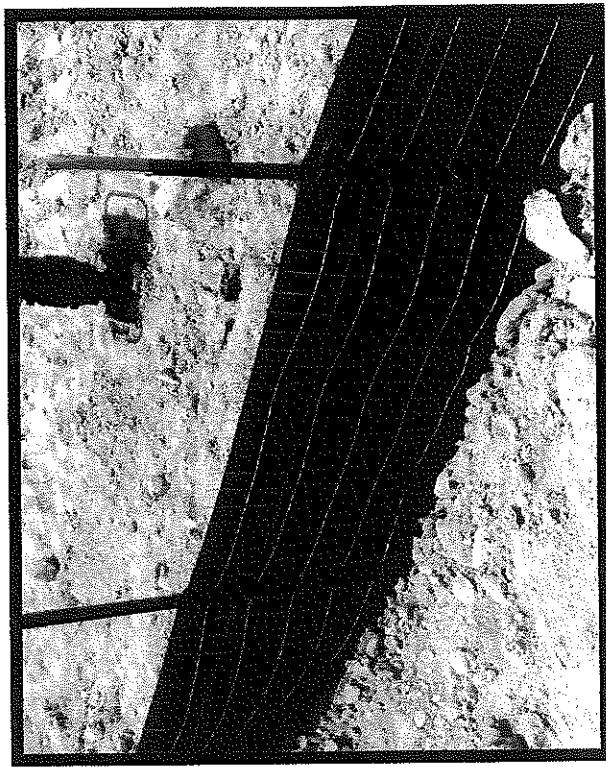


# New Guidelines

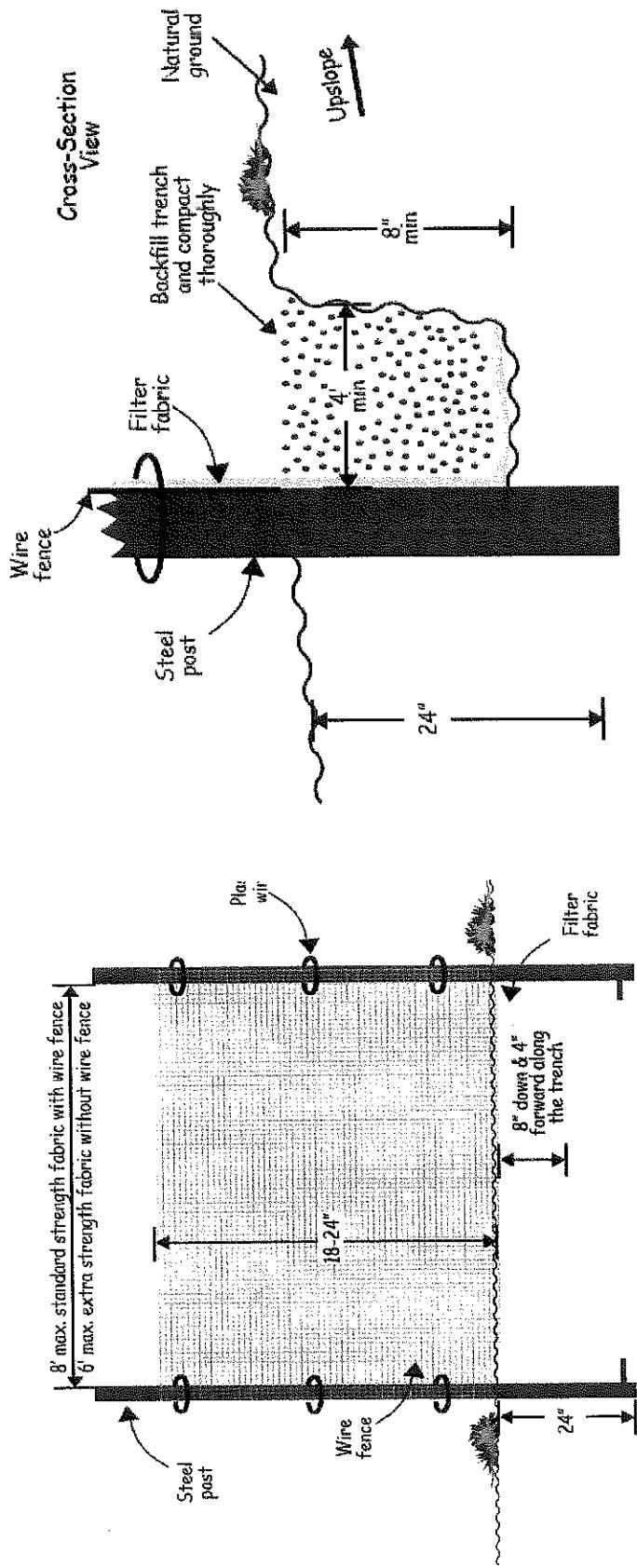
Posts made of 1.33  
lb/linear ft steel

Minimum post length of  
5 ft

Height above ground no  
greater than 24 inches  
Synthetic filter fabric  
with UV ray inhibitors  
and stabilizers (ASTM D  
6461)



# Silt Fence Installation

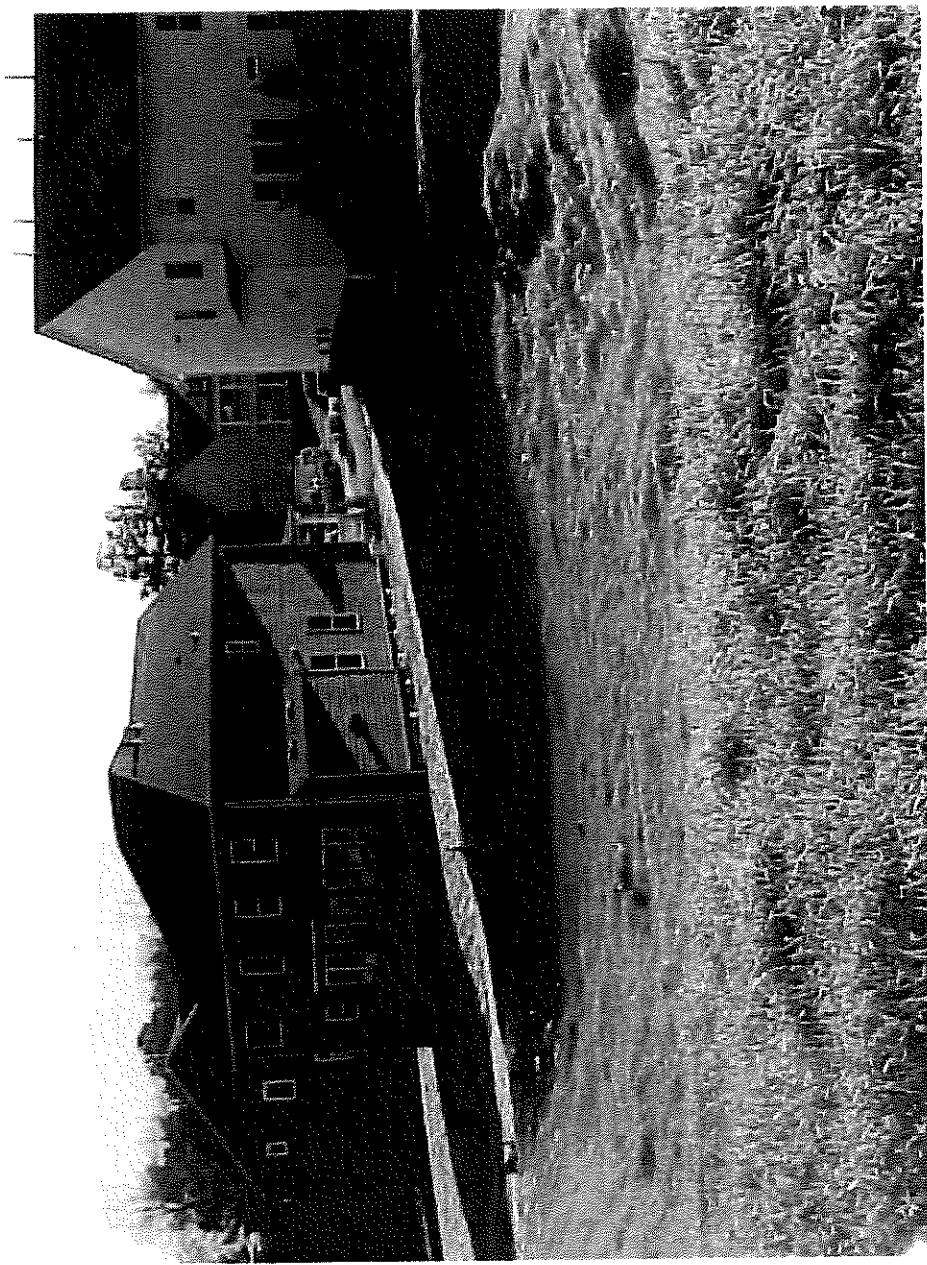


# Silt Fence Installation

Can also be done  
using the Slicing  
Method



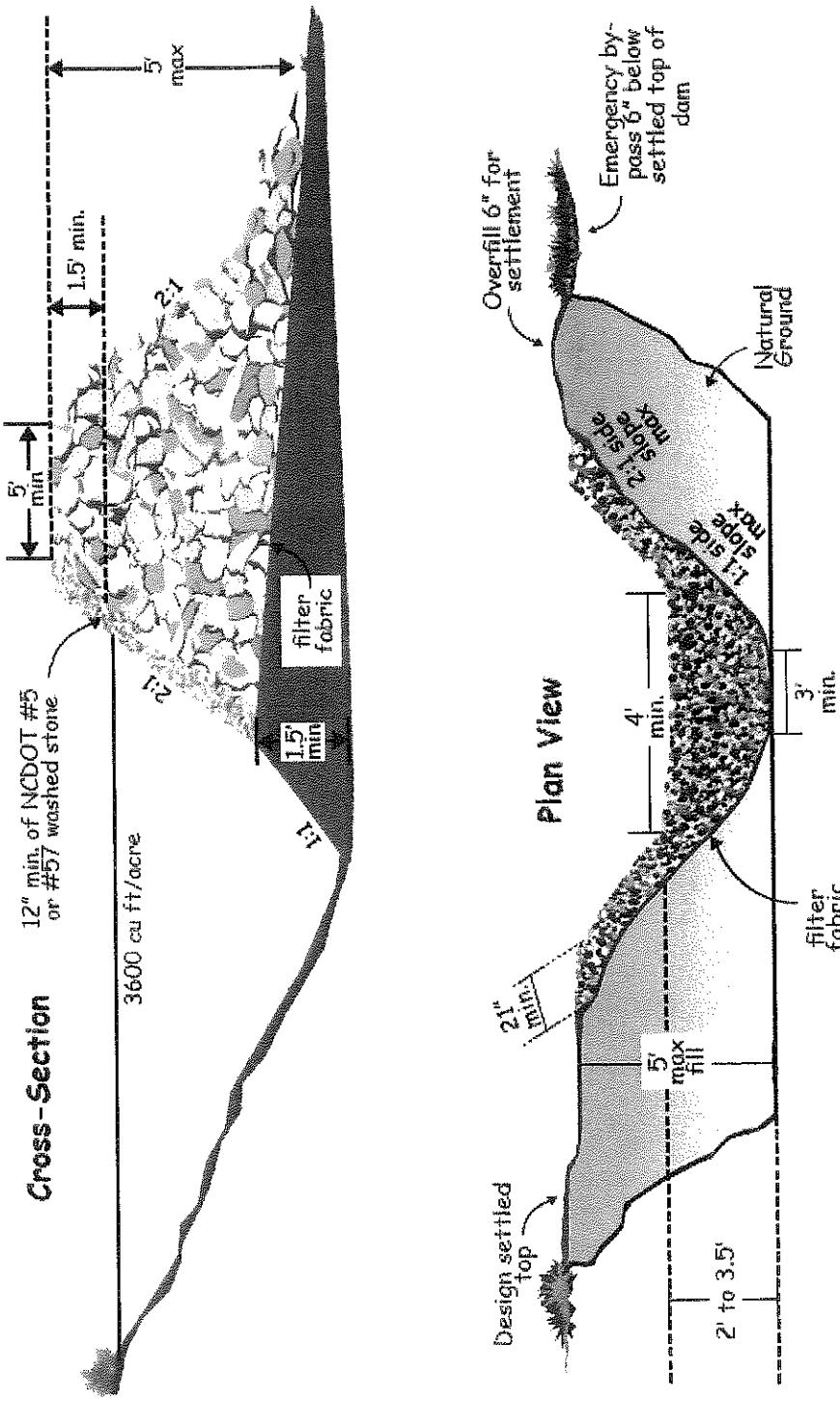
# Temporary Sediment Trap



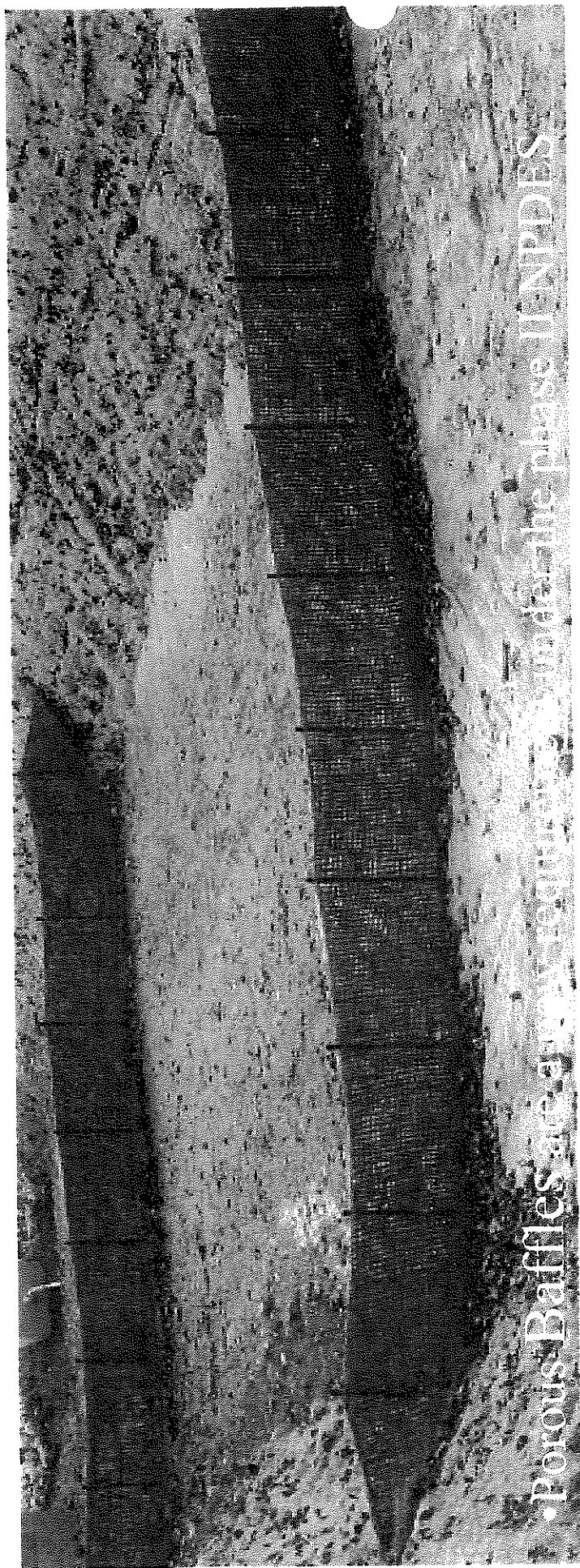
# Temporary Sediment Trap

- Drainage area of 5 acres or less
- Used at outlets of diversions, channels, slope drains, etc.
- Install before land disturbing activity takes place in the drainage area
- Porous Baffles *new requirement phase II*
- NPDES

# Temporary Sediment Trap



# Porous Baffles



# Porous Baffles

Developed by N. C. State University

Use in All Basins

Temporary Sediment Traps

Rock Dams

Sediment Basins

Skimmer Sediment Basins

# Baffles

- Prevent short-circuiting through basin
- Reduce turbulence
- Enhance trapping and settling efficiency
- Minimum of 3 baffles for large basins
- 2 baffles for basins less than 20 feet in length

# Baffles

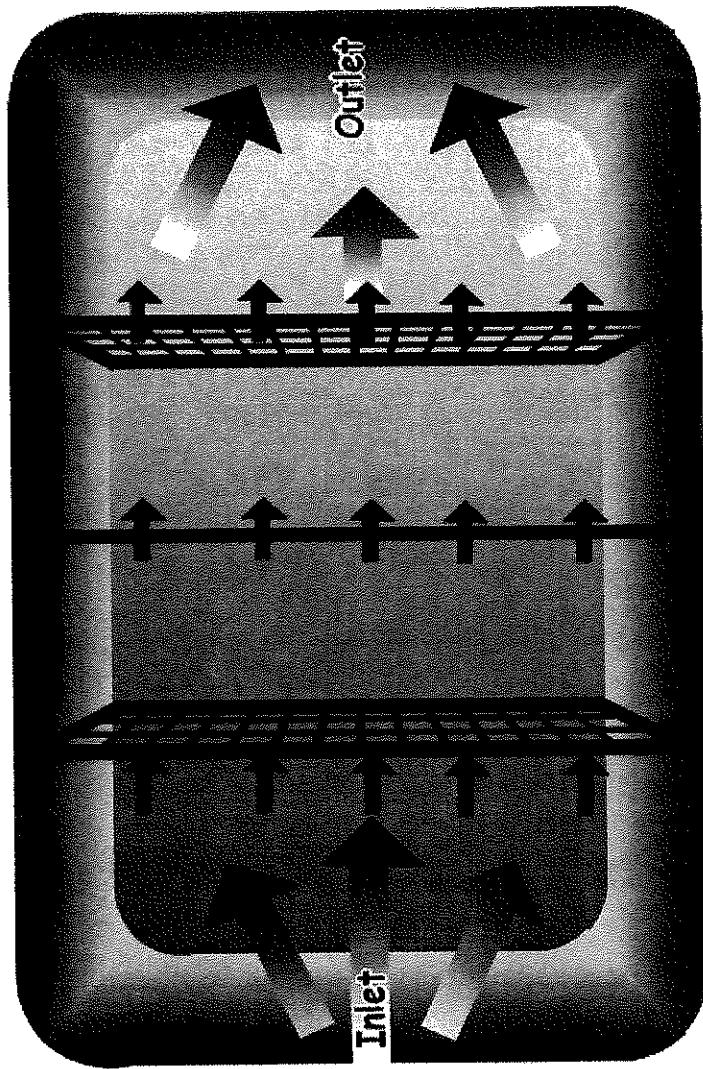


Figure 6.65a Porous baffles in a sediment basin. The flow is distributed evenly across the basin to reduce flow rates and turbulence, resulting in greater sediment retention.

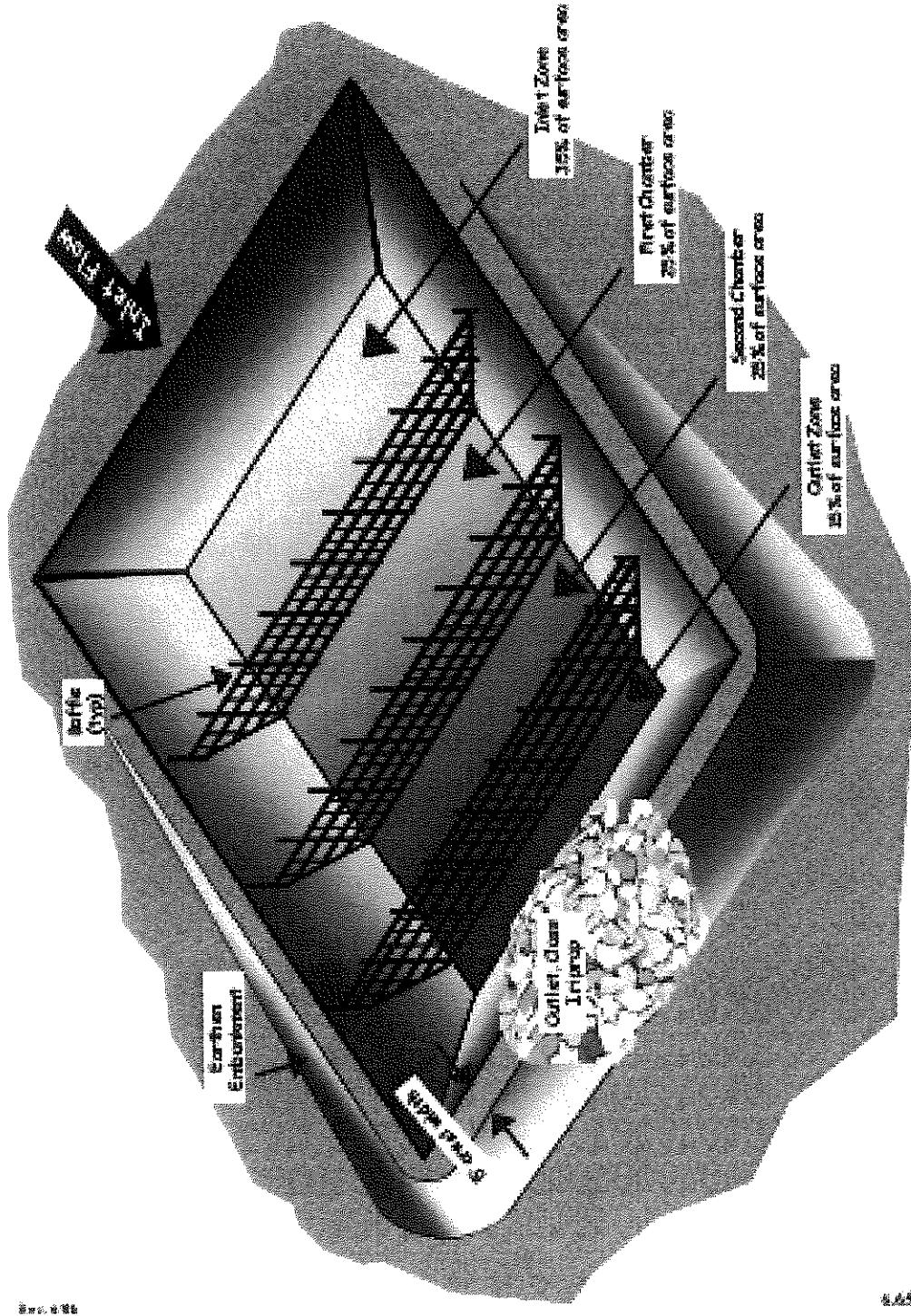


Figure 6.6.1 Example of particle drift using differences with respect to much more likely types of wave breaking forces (Cyclone High Point, NC detail).

# Hardware Cloth and Gravel

- Replaces fabric inlet protection
- #57 Washed stone with a height of 16" and 2:1 outside slope
- Steel post

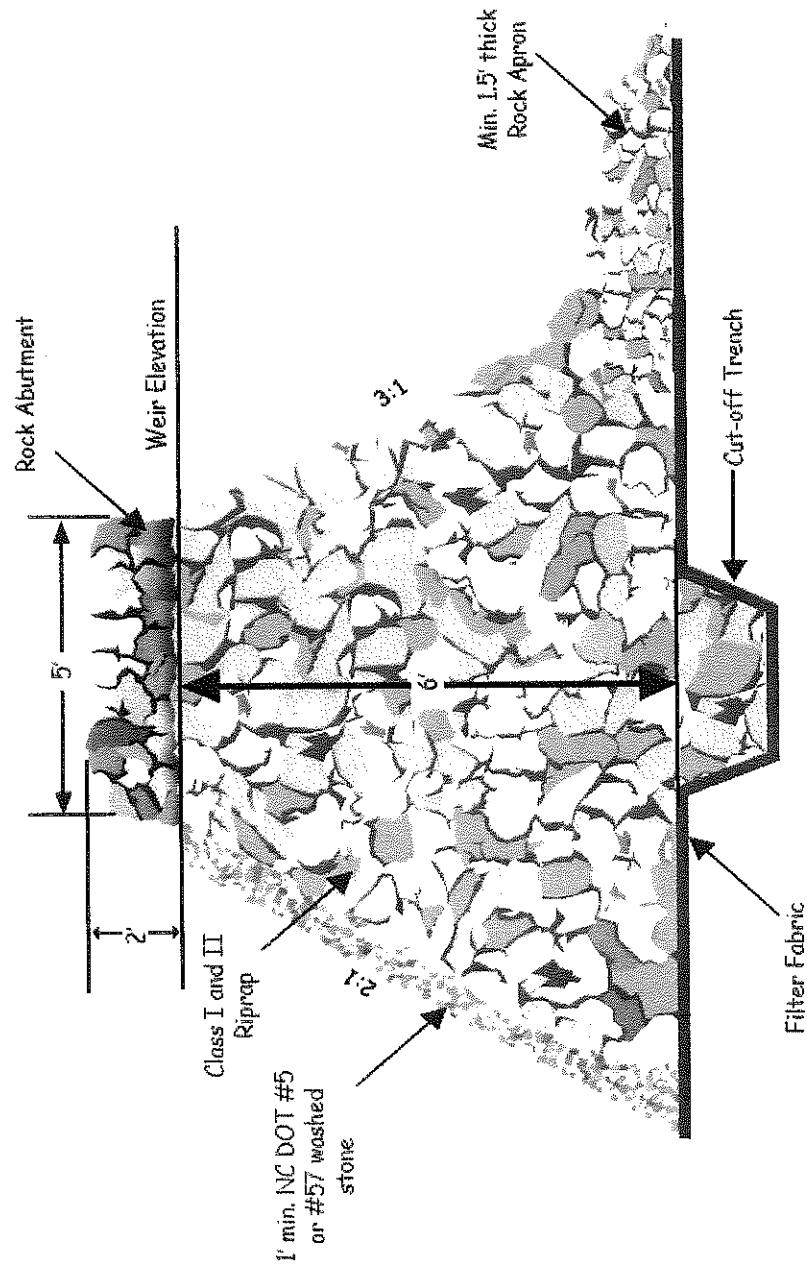


# Temporary Rock Dam

- Can be used in areas where drainage area is too large for temporary sediment trap
- Drainage area no greater than 10 acres
- Use when you want the top of the structure to serve as the overflow outlet, and where suitable rock is available
- Stone must tie into natural ground
- Height of dam no greater than 8 feet
- Porous Baffles Required



# Rock Dam



# Sediment Basin

- Use where drainage areas exceed the design criteria of other measures
- Drainage areas up to 100 acres



# Sediment Basin Considerations

- Need to have access for sediment removal
- Get a maximum amount of runoff from disturbed areas into the structure
- Divert clean runoff from undisturbed areas where practical
- Porous Baffles Required
- Watch where you discharge!

# Sediment Basin Regulation for Future Developments

Primary Spillway Capacity--2-yr peak flow

Total Spillway Capacity--10-yr peak flow

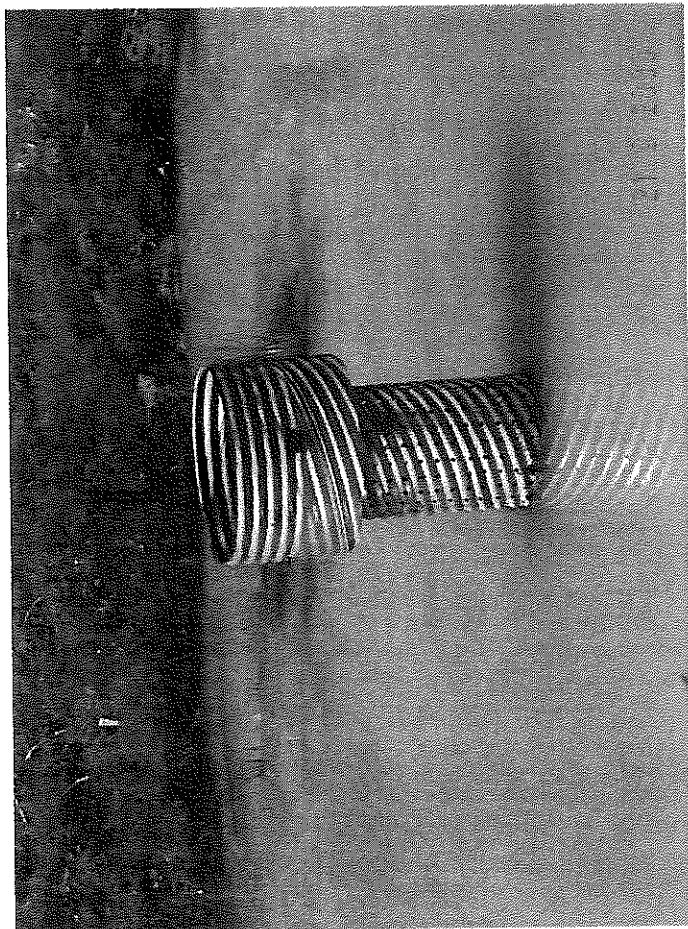
Minimum Dewatering Time 24 Hours

MUST Dewater From the Surface

Skimmer

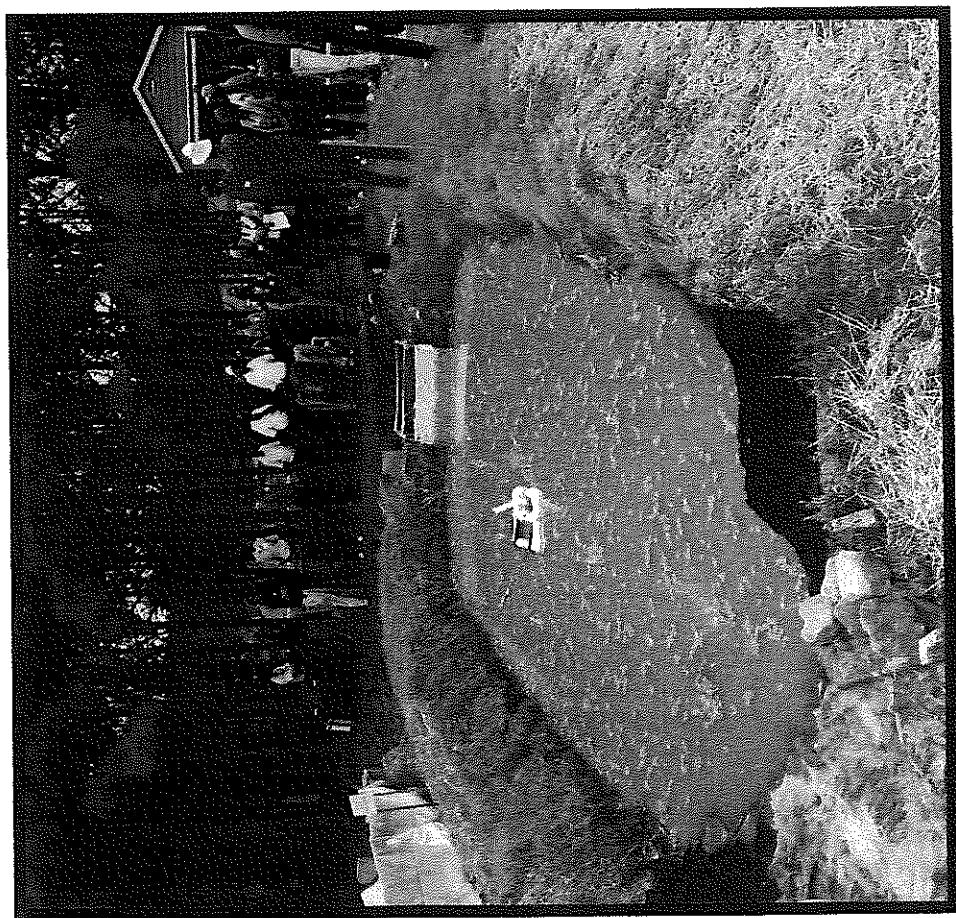
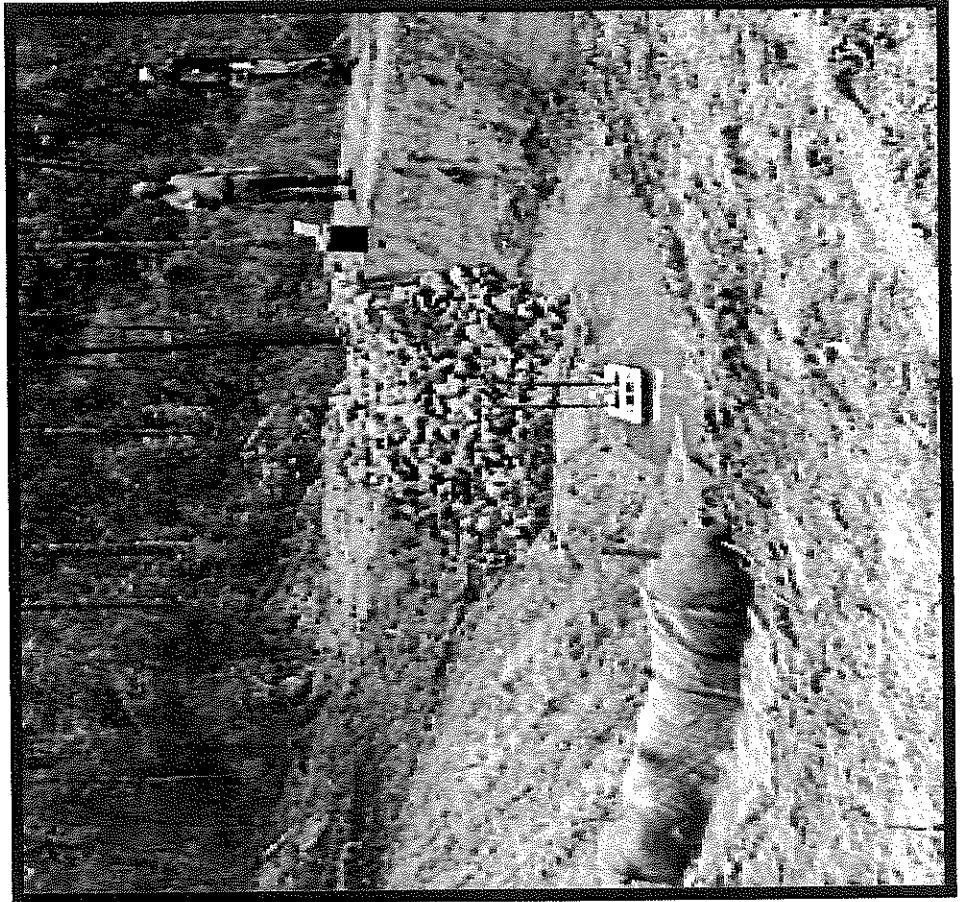
Flashboard Riser

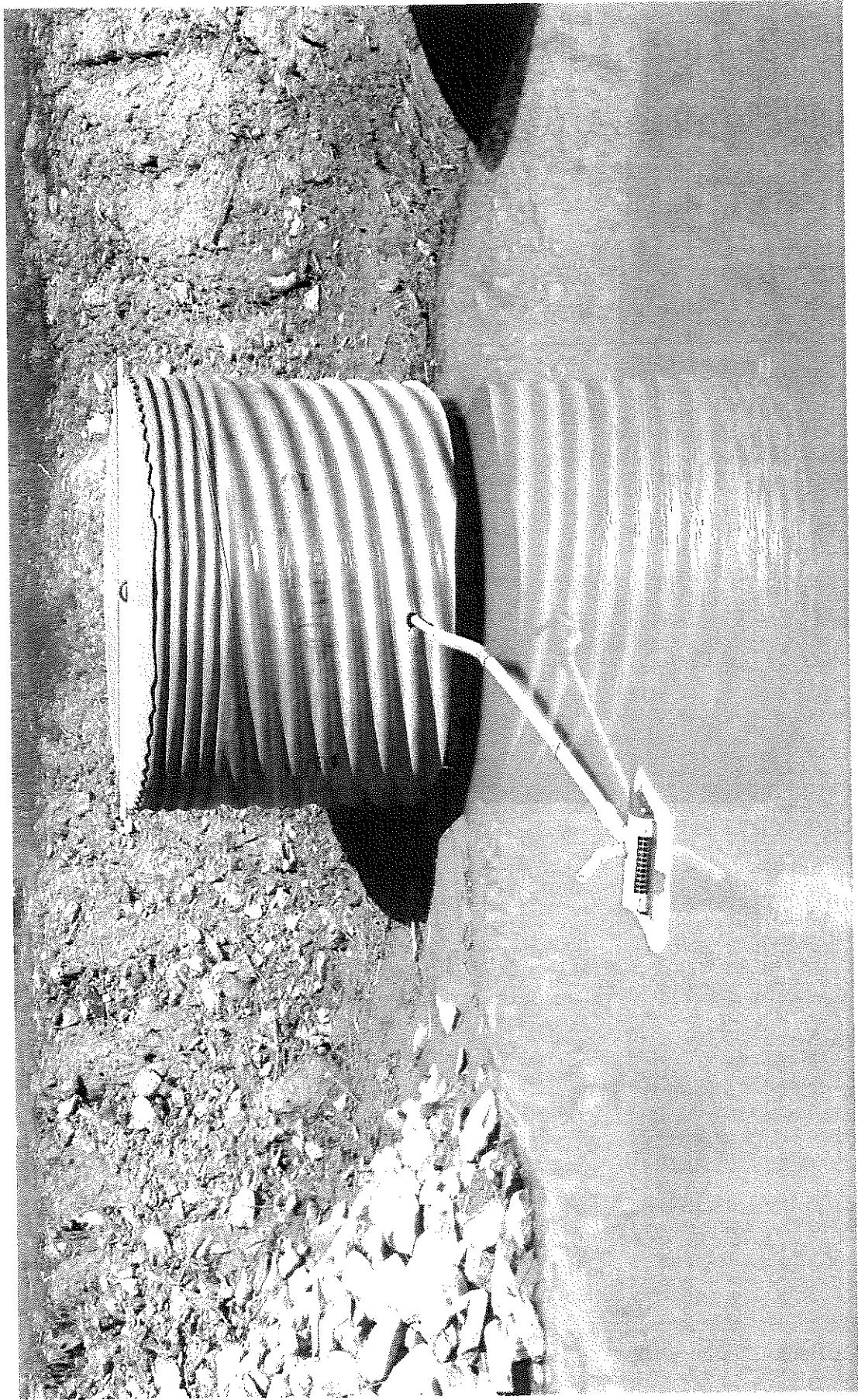
# Perforated Risers

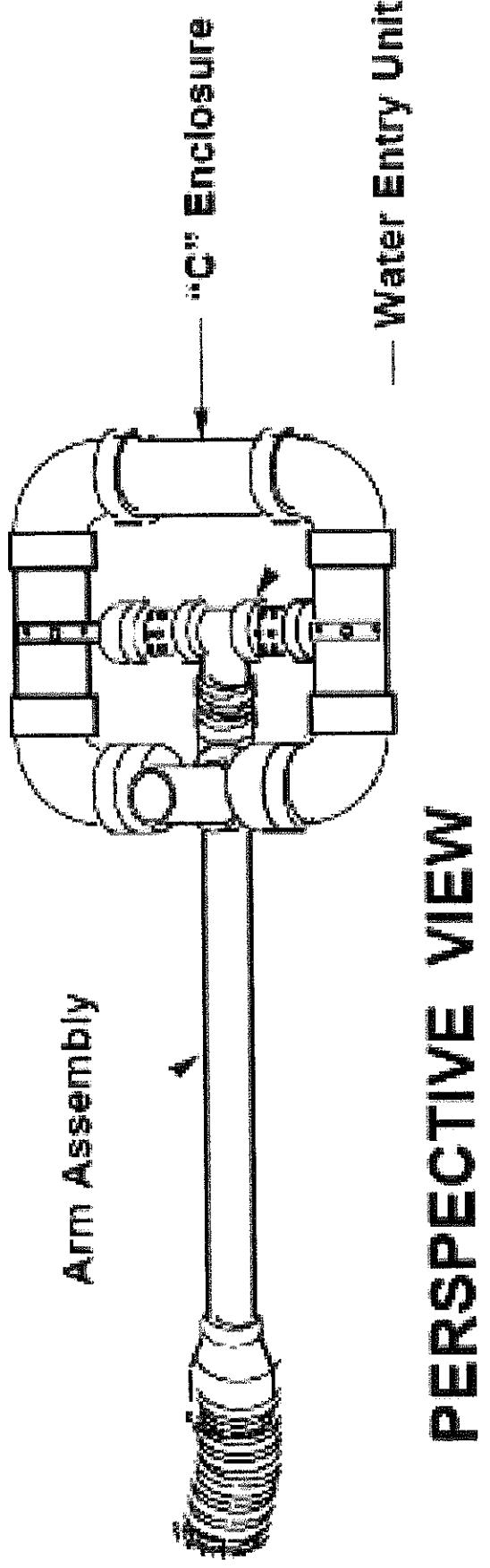


Perforated Risers – No longer recommended

# Skimmer Sediment Basin





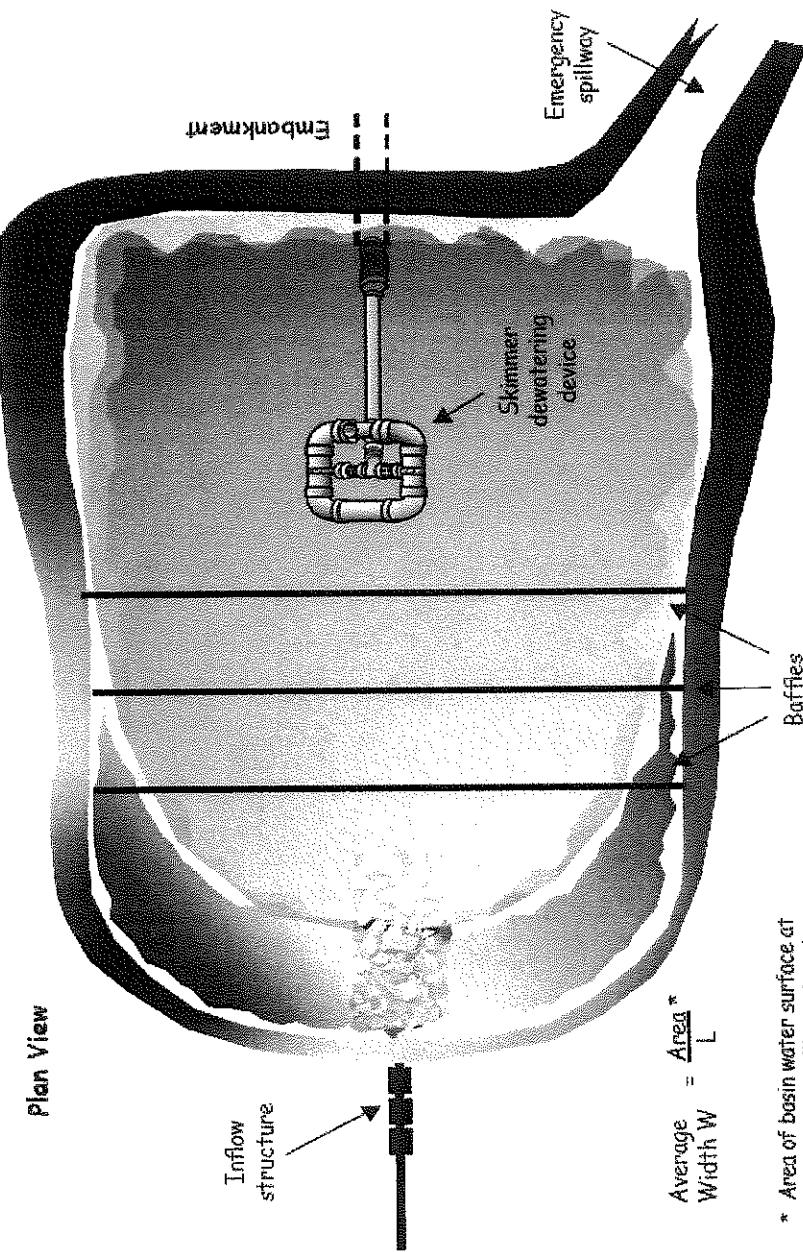


PERSPECTIVE VIEW

# Skimmer Sediment Basin

Maximum Drainage Area of 10 Acres  
Trapezoidal Spillway in Natural Ground  
Lined with Impermeable Geotextile or  
Laminate  
Dewatered with Floating Skimmer  
Porous Baffles Required

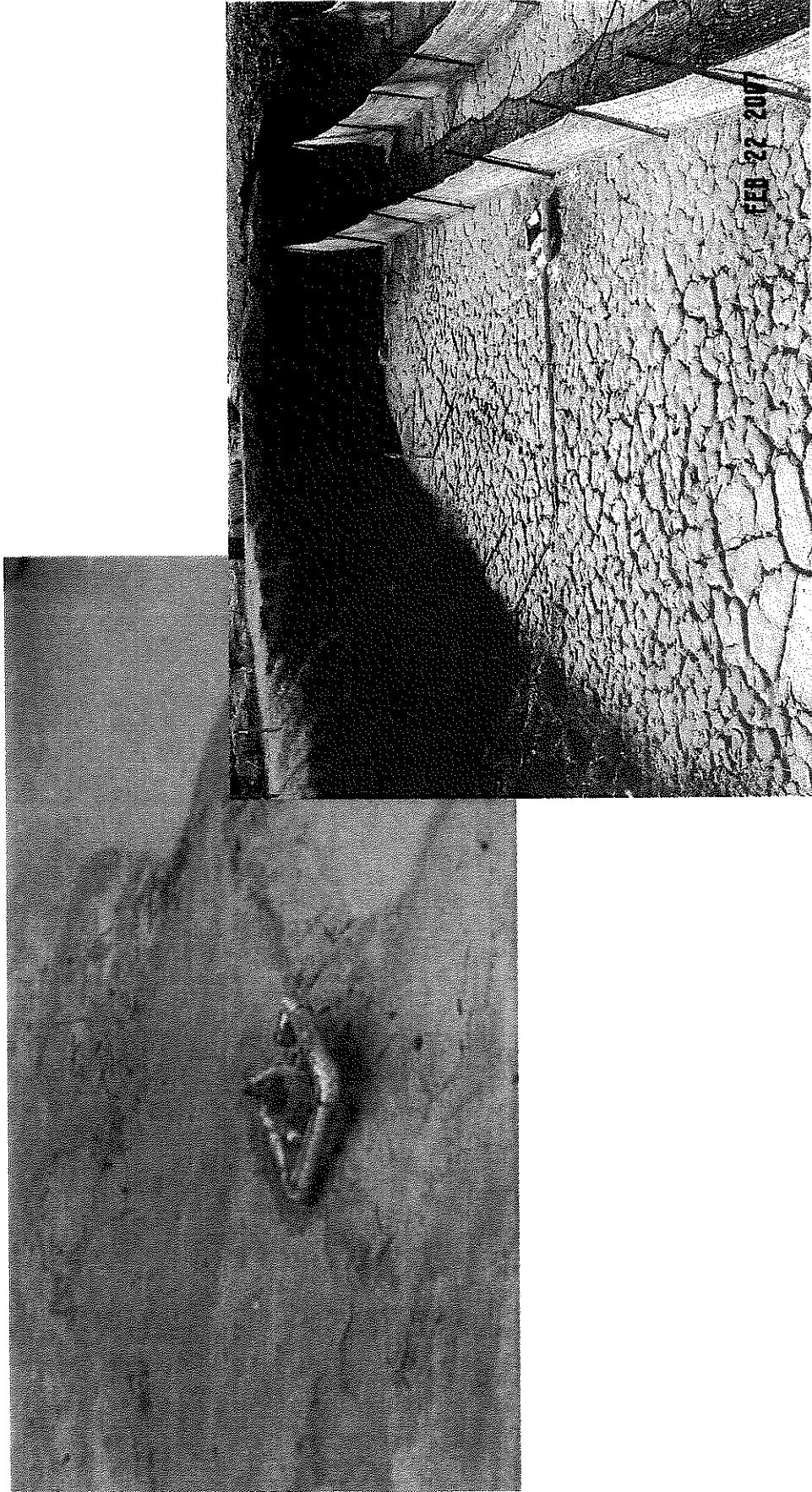
# Skimmer Sediment Basin



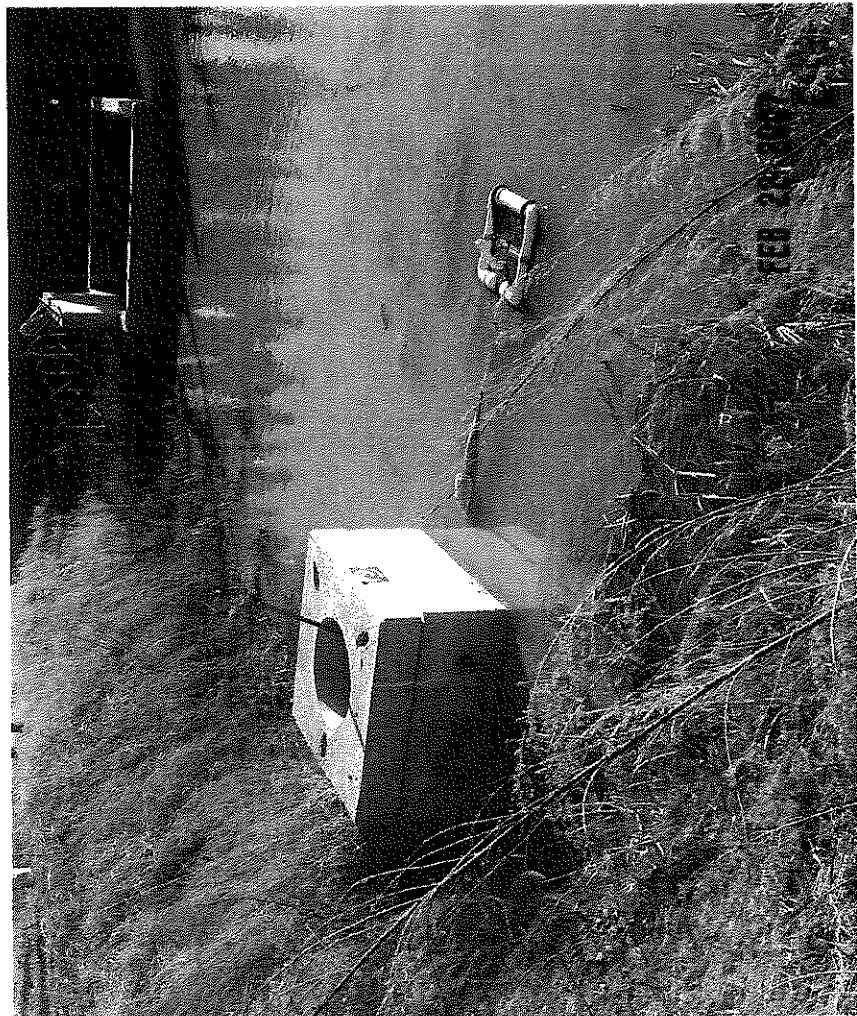
$$\text{Average Width } W = \frac{\text{Area}^*}{L}$$

\* Area of basin water surface at top of principal spillway elevation

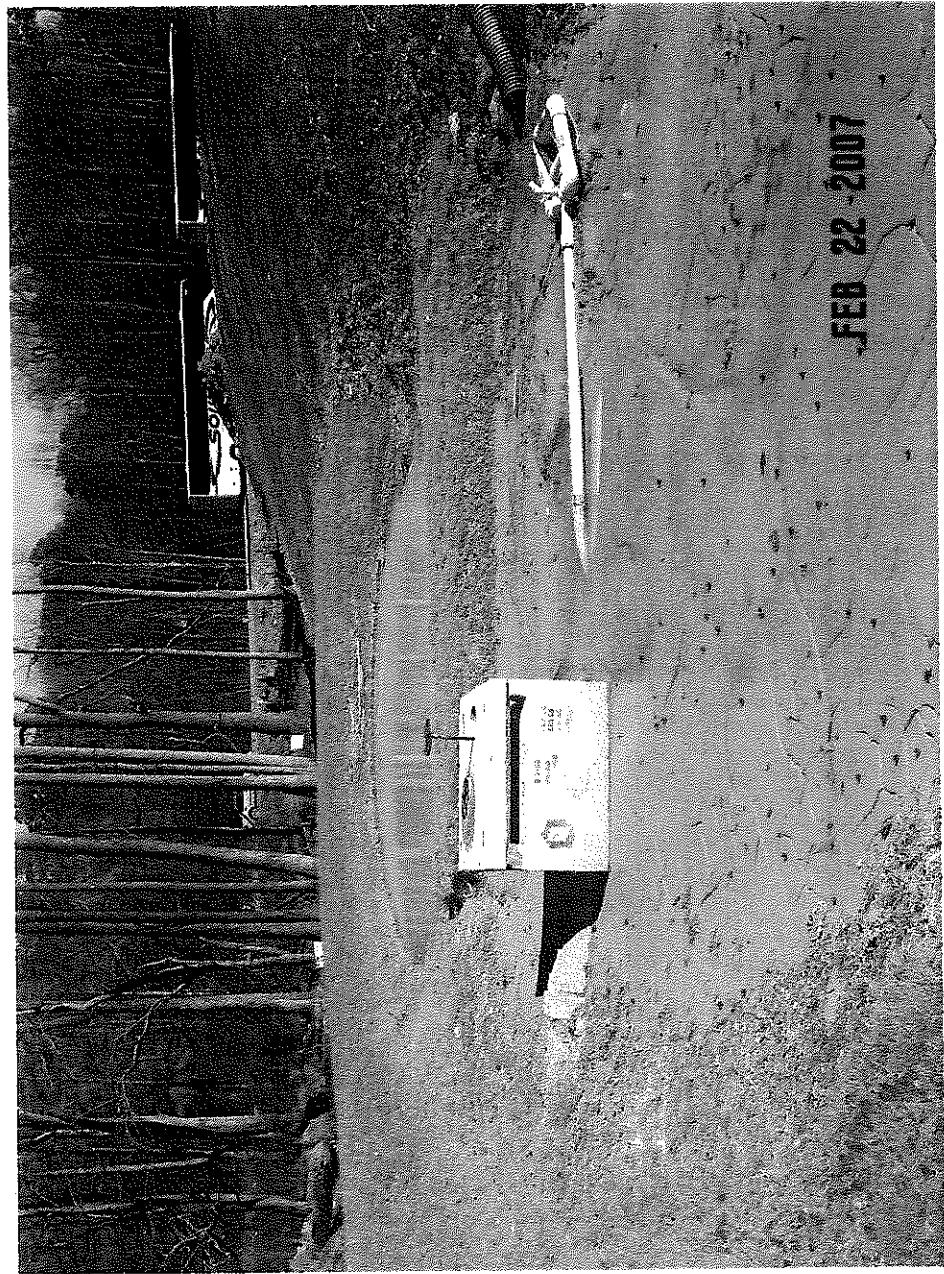
# Skimmer Maintenance



# Skimmers



# Skimmer Sediment Basin



# Skimmer Sediment Basins

Check for:

- Anti-flotation devices on the riser
- Trash racks (guards) on riser
- Emergency spillway in natural ground
- Access for frequent maintenance